

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) ~~Method~~ A method of selecting , from among N "Spatial Video CODECs" where N is an integer number greater than 1, the optimum "Spatial Video CODEC" for a same input signal I, ~~according to~~ comprising the following steps:

- obtaining from all the N "Spatial Video CODECs", for the same input signal I and a same quality parameter Q, ~~the a~~ a rate R and the distortion measures D, Q being an integer value between 0 and 100, defined by any rate-distortion algorithm to provide a compression of the input sequence with constant rate or with constant distortion, and
- calculating an optimality criterion by using the value $L_n=f(R_n, D_n)$ calculated for all the n from 1 to N, n being the index of the "Spatial Video CODEC", where $f(R_n, D_n)$ is a function of R_n and D_n , ~~characterized~~

~~in that wherein~~ the Spatial CODECs are aligned according to the theoretical MSE and the quality parameter Q, MSE being the Mean Square Error and is computed as

$$MSE = \frac{\Delta^2}{12} = \frac{(2^{(C_1 - Q/C_2)})^2}{12} \text{ for the case of uniform quantization with an average step } \Delta$$

defined as $\Delta = 2^{(C_1 - Q/C_2)}$ where C_1 controls the minimal and maximal quality and C_2 the variation of the distortion according to quality parameter Q,

~~in that wherein~~ the optimally criterion is defined as the minimization of said value $L_n=f(R_n, D_n)$,

in that the wherein said function is defined as the Lagrange optimization

$$f(R_n, D_n) = R_n + \lambda D_n,$$

in that he and wherein the Lagrange multiplier that weights the relative influence of

$$\text{the rate } R \text{ and of the distortion } D \text{ is defined as } \lambda = \frac{1}{2 \cdot \ln(2) \cdot MSE}.$$

2. (Currently Amended) ~~Method~~ The method according to claim 1, ~~characterized in that~~ wherein the input signal I is a natural image or a predicted image or any rectangular sub-block from a minimum size of 2x2 of the natural image or of the predicted image.

3. (Currently Amended) ~~Method~~ The method according to ~~one of the claims 1 to 2,~~ claim 1, wherein the rate R of the n-th "Spatial Video CODEC" is

$$\text{approximated by } R = \alpha \left(N_T - \sum_{\substack{|x_i| < \Delta \\ x_i = 0}} N_{x_i} \right), \text{ where } N_{x_i} \text{ is the number of coefficients with an}$$

amplitude equal to x_i , N_T is the total number of coefficients, and the parameter α is derived from experimental results.

4. (Currently Amended) ~~Method~~ The method according to ~~one of the claims 1 to 3,~~ claim 1, wherein the distortion D of the n-th "Spatial Video CODEC" is

$$\text{approximated by } D = \sum_{\substack{|x_i| < \Delta \\ x_i = 0}} x_i^2 N_{x_i} + \frac{\Delta^2}{12} \sum_{|x_i| \geq \Delta} N_{x_i} \text{ where } x_i \text{ is the amplitude of the coefficients}$$

and N_{x_i} is the number of coefficients with an amplitude of x_i .

5. (New) The method according to claim 2, wherein the rate R of the n -th "Spatial

Video CODEC" is approximated by $R = \alpha(N_T - \sum_{\substack{|x_i| < \Delta \\ x_i = 0}} N_{x_i})$, where N_{x_i} is the number of

coefficients with an amplitude equal to x_i , N_T is the total number of coefficients, and the parameter α is derived from experimental results.

6. (New) The method according to claim 2, wherein the distortion D of the n -th

"Spatial Video CODEC" is approximated by $D = \sum_{\substack{|x_i| < \Delta \\ x_i = 0}} x_i^2 N_{x_i} + \frac{\Delta^2}{12} \sum_{|x_i| \geq \Delta} N_{x_i}$ where x_i is the

amplitude of the coefficients and N_{x_i} is the number of coefficients with an amplitude of x_i .

7. (New) The method according to claim 3, wherein the distortion D of the n -th

"Spatial Video CODEC" is approximated by $D = \sum_{\substack{|x_i| < \Delta \\ x_i = 0}} x_i^2 N_{x_i} + \frac{\Delta^2}{12} \sum_{|x_i| \geq \Delta} N_{x_i}$ where x_i is the

amplitude of the coefficients and N_{x_i} is the number of coefficients with an amplitude of x_i .